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Evaluation of the knowledge levels of healthcare professionals about occupational diseases

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ABSTRACT

Aims: In the world and in our country, technological advancements, increased consumption, and new employment opportunities have led to an increasing number of health issues related to professionals, such as occupational diseases and workplace accidents.

Methods: This descriptive study was conducted with the participation of healthcare professionals at Erzurum City Hospital. A total of 287 healthcare professionals who agreed to participate in the study without the need for sampling were included. Descriptive statistics were presented as frequency, percentage, mean±standard deviation, and median (min:max). The chi-square test was used for the analysis of categorical data.

Results: All 91.3% of participants stated that they were aware of occupational diseases, 50.9% received education/training on occupational diseases, and 47.4% believed that occupational diseases are preventable. It was observed that women and married participants were more likely to hear occupational diseases, the difference was statistically significant ($p<0.05$).

Conclusion: Consequently, the study revealed that the knowledge of hospital employees about occupational diseases and occupational accidents was insufficient. Healthcare professionals should be informed about the risks that may cause occupational diseases in the work environment. Studies should be carried out and necessary trainings should be planned to increase the level of knowledge about the protective measures against these risks.

Keywords: Healthcare professionals, knowledge level, occupational diseases

INTRODUCTION

According to Social Insurance and General Health Insurance Law, an occupational disease is defined as a temporary or permanent illness, or a physical or mental disability, that a policyholder incurs due to repeated causes related to the nature of the work they perform or as a result of the conditions under which the work is carried out.[1] According to Occupational Health and Safety Law (OHS), a more straightforward definition is provided, describing occupational diseases as illnesses that arise as a result of exposure to occupational risks.[2] According to this law, an accident at work is an event that occurs in the workplace or in the course of work and causes death or mental or physical incapacity.[2]

A review of historical processes reveals that human beings have been compelled to engage in work since the inception of their existence in order to meet fundamental needs such as shelter and nutrition.[3] In his seminal work on occupational health and safety, Dr Bernardino Ramazzini highlighted the potential link between employees' diseases and their occupation, underscoring the significance of a comprehensive occupational history.[3]

The initial legal regulations related to occupational health and safety in our country were associated with mining activities. The Dilaver Pasha Regulation (1865) and the Maaddin Regulation (1869) represent the earliest documented instances of written legal regulations targeting occupational safety and health.[4] One of the most significant pieces of legislation to emerge during the Republican Period was Law No. 1593 on Public Hygiene, which came into force in 1930.[4] The Labour Law No. 4857, the Social Security and General Health Insurance Law No. 5510 and the OHS Law No. 6331, which entered into force in 2012, represent significant legal regulations in this field within the context of our country.[5]

In the world and in our country, the prevalence of health problems related to occupational factors is on the rise. This is due to a confluence of factors, including technological advancements, increased consumption, and the emergence of novel employment sectors. In our country, the Social Security Institution (SSI) has a very detailed list regarding the diagnosis of occupational diseases. The list includes occupational diseases related to chemical substances in group A, occupational dermatological diseases in group B, pneumoconiosis and other occupational respiratory system diseases in group C, occupational infectious diseases in group D, and finally occupational diseases due to physical factors in group E.[6]

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Approximately 2 million people die every year in the world due to work-related causes.[7] According to SSI data for 2023, 945 insured persons were diagnosed with occupational diseases and 681,401 insured persons had occupational accidents.[8]

According to our legislation, hospitals are in the group of very dangerous workplaces and healthcare professionals face many risk factors during working hours. It is necessary to inform health professionals about the risks they face in working life, the prevention of occupational diseases and occupational accidents that may arise from these risks, to plan the necessary trainings and to carry out studies to raise awareness. The objective of this study was to evaluate the level of knowledge about occupational diseases among employees of a tertiary healthcare institution.

METHODS

This descriptive study was conducted with the participation of healthcare professionals from Erzurum City Hospital. A total of 287 healthcare professionals who agreed to participate in the study were interviewed, without the selection of a sample. In the study, the questionnaire form, titled "evaluation of the level of knowledge of occupational diseases of employees in a tertiary health care organisation," which was developed by the research team, was used as a data source. The questionnaire form comprises a series of questions designed to assess the socio-demographic characteristics of health professionals, their work practices, their understanding of occupational diseases, their awareness of occupational accidents and their knowledge of the OHS Law. The questionnaires were applied by face-to-face interview method and the application time of a questionnaire was approximately 5-6 minutes. The questionnaire consists of 15 multiple choice questions.

For the implementation of the study and the use of the data, the approval of the ethics committee was obtained from Erzurum Medical Faculty Ethics Committee (Date: 13.09.2023, Decision No: BAEK 2023/05-55). The research was conducted in accordance with the principles of the Declaration of Helsinki. Before the survey, the purpose and content of the study were explained to the participants and verbal consent was obtained.

Statistical Analysis

The research data were evaluated with IBM SPSS 23.0 statistical package program. Descriptive statistics were presented as frequency, percentage, mean value±standard deviation and median (min:max). Chi-square test was used to analyse categorical data. Statistical significance value was accepted as $p<0.05$. The dependent variable of the study is the status of employees' hearing about occupational diseases.

RESULTS

It was determined that 36.3% of the individuals participating in the study were between the ages of 18-29, 56.1% were female and 67.2% were married. Physicians constituted 10.8% of the participants. All 72.1% of the participants stated that their general health status was good, 22.0% stated that they had a chronic disease and 50.9% stated that they had never smoked. All 91.3% of the participants stated that they had heard occupational diseases, 50.9% stated that they had received education/training about occupational diseases and 47.4% stated that they thought that occupational diseases were preventable diseases (**Table 1**). A total of 79.4% of participants indicated that occupational diseases are mandatory notifiable diseases. The most frequently notified institution was the Provincial Health Directorate, with a notification frequency of 53%. Of the individuals who participated in the study, 60.3% stated that they did not know which occupational disease is the most frequently diagnosed/reported occupational disease in our country. All 15.3% of the participants stated that they had

Table 1. Descriptive characteristics of participants, Erzurum, 2023

	Number	(%)*
Age (n=287)		
18-29 years	104	36.3
30-39 years	87	30.3
40-49 years	65	22.6
50 years and over	31	10.8
Gender (n=287)		
Female	161	56.1
Male	126	43.9
Marrital status(n=287)		
Married	193	67.2
Single/ divorced/widowed	94	32.8
Title(n=287)		
Physician	31	10.8
Nurse/traniee nurse	126	43.9
Secretary/cleaning staff/administrative unit employees	130	45.3
General health status (n=287)		
Good	207	72.1
Middle	73	25.4
Bad	7	2.5
Chronic disease (n=287)		
Yes**	63	22.0
No	224	78.0
Smoking status (n=287)		
Never used	146	50.9
Left	35	12.2
Occasionally	41	14.3
Still using	65	22.6
Hearing about occupational diseases (n=287)		
Yes	262	91.3
No	25	8.7
Having received training/courses related to occupational diseases (n=287)		
Training/courses	146	50.9
No training/courses	141	49.1
Thinking whether occupational diseases are preventable diseases (n=287)		
Preventable	136	47.4
Unavoidable	151	52.6

*Percentage of column, **The most common chronic diseases were found to be 'thyroid diseases', 'hypertension' and 'diabetes mellitus'

Table 2. Participants' knowledge about occupational diseases, Erzurum, 2023

	Number	(%)*
Whether the notification of occupational diseases is mandatory or not (n=287)		
Notification is mandatory	228	79.4
Notification is not mandatory	59	20.6
To which organisation the notification will be made (n=258) ≠		
Provincial health directorate	135	52.3
Social security institution	113	43.7
Chief physician	112	43.4
Occupational diseases hospital	74	28.6
District health directorate	49	18.9
Other**	4	1.5
Knowledge of the most frequently diagnosed/reported occupational disease in Turkey (n=287)		
Yes***	114	39.7
No	173	60.3
Status of occupational accident (n=287)		
Yes****	44	15.3
No	243	84.7
Hearing about OHS Law No. 6331 (n=287)		
Yes	215	74.9
No	72	25.1

*Percentage of column, ≠ More than one answer was given to the related question, the percentage was calculated over the number of respondents, ** 'Occupational health and safety unit' was the most common answer among 'other', ***Those who stated that they know the most frequently diagnosed/reported occupational diseases in our country answered 'pneumoconiosis', 'respiratory system diseases' and 'lumbar/cervical hernia', **** The most common type of occupational accident was determined as 'injector injury'

an occupational accident and 74.9% stated that they had heard of the OHS Law (**Table 2**). When the participants were asked which diseases could be occupational diseases, 73.5% of them answered infectious diseases, 73.2% heavy metal poisoning, 70.4% hearing loss and 68.6% pneumoconiosis (**Table 3**). It was observed that women and married participants were more likely to hear occupational diseases, the difference was statistically significant (p<0.05) (**Table 4**).

Table 3. Participants' opinion on which diseases can be occupational diseases, Erzurum, 2023

	Number	(%)*
Which diseases can be occupational diseases (n=287) ≠		
Infectious diseases	211	73.5
Heavy metal poisoning	210	73.2
Hearing loss	202	70.4
Pneumoconiosis	197	68.6
Lumbar/cervical hernia	179	62.4
Cancers	161	56.1
Asthma	160	55.7
Carpal tunnel syndrome	159	55.4
COPD	144	50.2
Contact dermatitis	128	44.6
Lateral/medial epicondylitis	111	38.7

*Percentage of column, ≠ More than one answer was given to the relevant question, the percentage was calculated over the number of respondents

Table 4. Descriptive characteristics and having heard of occupational diseases, Erzurum, 2023

	Having heard of occupational diseases			
	Yes		No	
	Number	(%)*	Number	(%)*
Age groups (n=287)				
18-29 years	93	89.4	11	10.6
30-39 years	81	93.1	6	6.9
40-49 years	61	93.8	4	6.2
50 years and over	27	87.1	4	12.9
	p=0.565			
Gender(n=287)				
Female	152	94.4	9	5.6
Male	110	87.3	16	12.7
	p=0.035**			
Marital status(n=287)				
Married	181	93.8	12	6.2
Single/ divorced/widowed	81	86.2	13	13.8
	p=0.037**			
Title (n=287)				
Physician	30	96.8	1	3.2
Nurse/traniee nurse	117	92.9	9	7.1
Other health personnel	114	87.7	16	12.3
	p=0.173			
Status of occupational accident (n=287)				
Yes	42	95.5	2	4.5
No	220	90.5	23	9.5
	p=0.391**			
Hearing about OHS Law No. 6331 (n=287)				
Yes	197	91.6	18	8.4
No	65	90.3	7	9.7
	p=0.728**			

*Line percentage, ** Chi-Square test with yates correction was applied

DISCUSSION

It was determined that 36.3% of the individuals participating in the study were between the ages of 18-29, 56.1% were female and 67.2% were married. The mean age of the participants was 35.4±9.9 and the median age was 34 (min:18-max:61). 10.8% of the participants were physicians. Among the participants, 72.1% stated that their general health status was good, 22.0% stated that they had a chronic disease and 22.6% stated that they smoked. Among those who stated that they had a chronic disease, the most common diagnoses were thyroid diseases, hypertension and diabetes mellitus. In a similar study conducted in a training and research hospital in Ankara, 5.6% of the participants were diagnosed with hypertension.[9] In the world and in our country, the prevalence of hypertension in the general population has been increasing gradually over the years due to problems such as stress, lack of physical activity and irregular nutrition, and it has emerged as a serious public health problem.

All 91.3% of the participants stated that they had heard about occupational diseases and 50.9% stated that they had received a training or course on occupational diseases. In a study conducted with doctors and nurses at a training and research hospital, 27.3% of the participants reported that they received training on the prevention of infections, occupational accidents, and occupational diseases as part of the orientation program when starting their job.[9] In a study conducted with physicians and other healthcare professionals working in the anaesthesia department, 22.7% of the physicians and 83.3% of the other healthcare professionals reported having received training on occupational health and safety.[10] In a study conducted with employees at a university, it was found that 7.3% of the participants had no knowledge about occupational diseases.[11]

In a study conducted with physicians at a university hospital, 54.0% of the participants reported having received training on occupational diseases.[12] A review of the literature reveals that in hospitals categorized as high-risk workplaces, occupational health and safety training is not sufficiently reaching healthcare professionals and their level of knowledge on this matter is inadequate. Whereas, according to the legislation, it is obligatory for those who will work in dangerous and very dangerous workplaces to be subjected to vocational training before being employed.[13] The concept of occupational health and safety acquired a degree of significance in Turkey with the introduction of the OHS Law in 2012. Nevertheless, it is clear that the level of awareness remains insufficient.

Hospitals, according to our legislation, are categorized as high-risk workplaces, and employees are exposed to various risk factors, including infectious diseases, as well as physical (noise, temperature, lighting, radiation, etc.), chemical (formaldehyde, disinfectants, etc.), and ergonomic risks. It is very important for healthcare professionals to have information about the risks they face in the working environment and to increase their level of knowledge about the protective measures against these risks.

In our study, 47.4% of participants stated that occupational diseases are preventable diseases. In a study conducted with physicians working in a university hospital, similar to our study, 49.9% of participants stated that occupational diseases are preventable diseases.[12] Occupational diseases are preventable diseases, and the lack of knowledge of health professionals, especially physicians, on this issue is a sad fact. In the OHS Law, occupational diseases are defined as diseases that occur as a result of exposure to occupational risks.[2] Occupational diseases are preventable diseases in an environment where protective measures are taken against all risks, employees have a high level of knowledge about the risks in the working environment and the necessary personal protective equipment is used.

All 79.4% of the participants stated that occupational diseases are among the diseases that must be notified. When

asked to which institution or institutions the notification of occupational diseases should be made, 52.3% answered Provincial Health Directorate and 43.4% answered Chief Physician's Office. All 43.7% of the participants stated that the notification of occupational diseases should be made to SSI. In a study conducted with physicians working in a university hospital, 39.7% of the participants stated that the notification of occupational diseases should be made to SSI.[12] In both studies, less than half of the participants indicated that occupational disease notification should be made to SSI. In our country, occupational diseases are mandatory notifiable diseases, and the employer is obliged to notify the SSI within three working days if an occupational disease is diagnosed by an authorised health institution.

The group of participants who stated that they were most knowledgeable about the most frequently diagnosed and reported occupational diseases in our country constituted 39.7% of the total number of participants. The participants stated the most frequently diagnosed/reported occupational diseases as 'pneumoconiosis', 'respiratory system diseases' and 'lumbar/cervical hernia' respectively. In many countries, the most common occupational diseases are musculoskeletal system related diseases. In our country, the most common occupational disease reported to the SSI is pneumoconiosis, which is one of the occupational respiratory system diseases.[14] This may be related to the fact that the occupational history of the employees was not questioned in detail and the relationship between musculoskeletal diseases and work was overlooked.

In our study, 15.3% of the participants stated that they had an occupational accident and the most common occupational accident was injector injury. In a study conducted with health vocational high school students, it was stated that 31.6% of the students experienced sharps injuries and 49.5% of them were injured during the preparation of medication for the syringe.[15] In a study conducted with cleaning staff in a university hospital, 27.8% of the participants stated that they had been injured at least once with a sharp instrument.[16] In a study conducted in a hospital in Ankara with employees with a history of sharps injuries, it was found that 43.0% of the participants were injured with an injector.[17]

In institutions providing health care services, sharp piercing instruments such as syringes and lancets are frequently used during working hours. It is seen that occupational accidents are quite common due to reasons such as fatigue, stress and carelessness during the day. In occupational health and safety trainings, it is very valuable to convey information such as proper disposal of syringes in sharps boxes, not closing the cap after syringe use, not throwing syringes in household waste bins and the importance of using personal protective equipment, especially to young and inexperienced health professionals.

In a study conducted with physicians and other health professionals working in the anaesthesia department, 64% of physicians and 75.6% of other health professionals stated that they had heard of the OHS law.[10] In a study conducted with public employees of a university, 37.3% of the participants stated that they had little knowledge about the OHS law, while 20.9% stated that they had no knowledge at all.[11] It is seen that hospital employees have a higher level of knowledge about OHS Law compared to public employees.

The majority of participants (73.5%) indicated that infectious diseases could be classified as occupational diseases. Similarly, a significant proportion of participants (73.2%) identified heavy metal poisoning, (70.4%) hearing loss, (68.6%) pneumoconiosis and (62.4%) lumbar/cervical hernia as potential occupational diseases. Especially with the COVID-19 pandemic, it is seen that there is an awareness in the society that infectious diseases seen in healthcare professionals may be occupational infectious diseases.

Among the participants, the frequency of hearing about occupational diseases was higher in women and married, the difference was found to be statistically significant ($p<0.05$). Although physicians and nurses who are in one-to-one contact with patients are expected to be more knowledgeable about occupational diseases than technical or administrative staff, no significant difference was found in this study.

Limitations

One of the limitations of this study is the low participation of health professionals in the study. The study encountered significant challenges, particularly in the inclusion of physicians.

CONCLUSION

As a result, in this study, it is seen that the level of knowledge of healthcare professionals about occupational diseases, occupational accidents, what the risks are and what kind of problems they may cause, and the current legal regulations is insufficient. Due to the working conditions in the world and in our country, employees in all sectors face many problems related to occupational health and safety. For this reason, it is a fact that all employees, especially healthcare professionals, need more information about existing legal regulations, their rights, risks and ways of protection from them. Health surveillance of health professionals should be carried out within the scope of recruitment examinations, periodic examinations, return-to-work examinations after returning to work after an occupational accident or occupational disease should be carried out regularly. In addition, orientation trainings for new recruits and annual occupational health and safety trainings should be planned and regular participation of all employees to these trainings should be ensured.

ETHICAL DECLARATIONS

Ethics Committee Approval

For the implementation of the study and the use of the data, the approval of the ethics committee was obtained from Erzurum Medical Faculty Ethics Committee (Date: 13.09.2023, Decision No: BAEK 2023/05-55).

Informed Consent

Informed consent was obtained from all patients participating in the study.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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